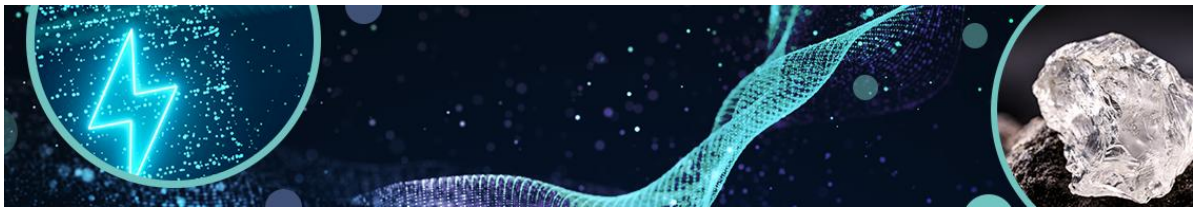

PRESS RELEASE
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LiCORNE ranks most promising lithium production technologies

The Horizon Europe project LiCORNE has reached an important milestone on its way to establish a sustainable lithium supply chain in Europe. After 30 intense months dedicated to research and development, the consortium has ranked the most promising process routes for producing battery-grade materials from three streams: ores, brines and battery waste. These selected technologies will now undergo to the upscale phase for validation and further environmental and economic assessment.

LiCORNE – short for "Lithium recovery and battery grade materials production from European resources", aims to establish Europe's first integrated lithium supply chain by increasing processing and refining capacity for battery-grade chemicals sourced from ores, geothermal and continental brines, tailings and off-specification cathode materials.

AIMS TO ESTABLISH EUROPE'S FIRST INTEGRATED LITHIUM SUPPLY CHAIN. FOCUS ON SUSTAINABLE AND SCALABLE SOLUTIONS

Europe holds lithium resources in pegmatite ores and geothermal brines, with additional potential in battery production waste. However, environmental concerns and higher standards remain key challenges to win over the public trust of European citizens. LiCORNE addresses these concerns by proposing technologies that are cost-effective, safe and environmentally responsible.

Over the past 30 months, the project consortium has developed and optimised 14 technologies, which later were combined into 18 potential process routes – also known as flowsheets. The final ranking of these routes was enriched with a product quality study based on the characterisation of the materials produced at the end of each flowsheet, environmental impact (Life Cycle Analysis – LCA) and economic performance (Life Cycle Cost – LCC).

This year, the final ranking identified the best-performing flowsheets for each material explored by LiCORNE:

- **Ores (spodumene):** a route combining calcination with additives and leaching (NTUA), direct lithium extraction via adsorption (VITO), and electrodialysis (SINTEF) showed the best balance of quality, cost and environmental performance.
- **Brines (continental):** TECNALIA's liquid-liquid extraction route followed by carbonation demonstrated strong environmental and economic results, with high product purity and yield.

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- **Off-specification cathode (battery waste):** SINTEF's chlorination and electrochemical recovery technologies delivered high-purity lithium metal and efficient recovery of cobalt and nickel.

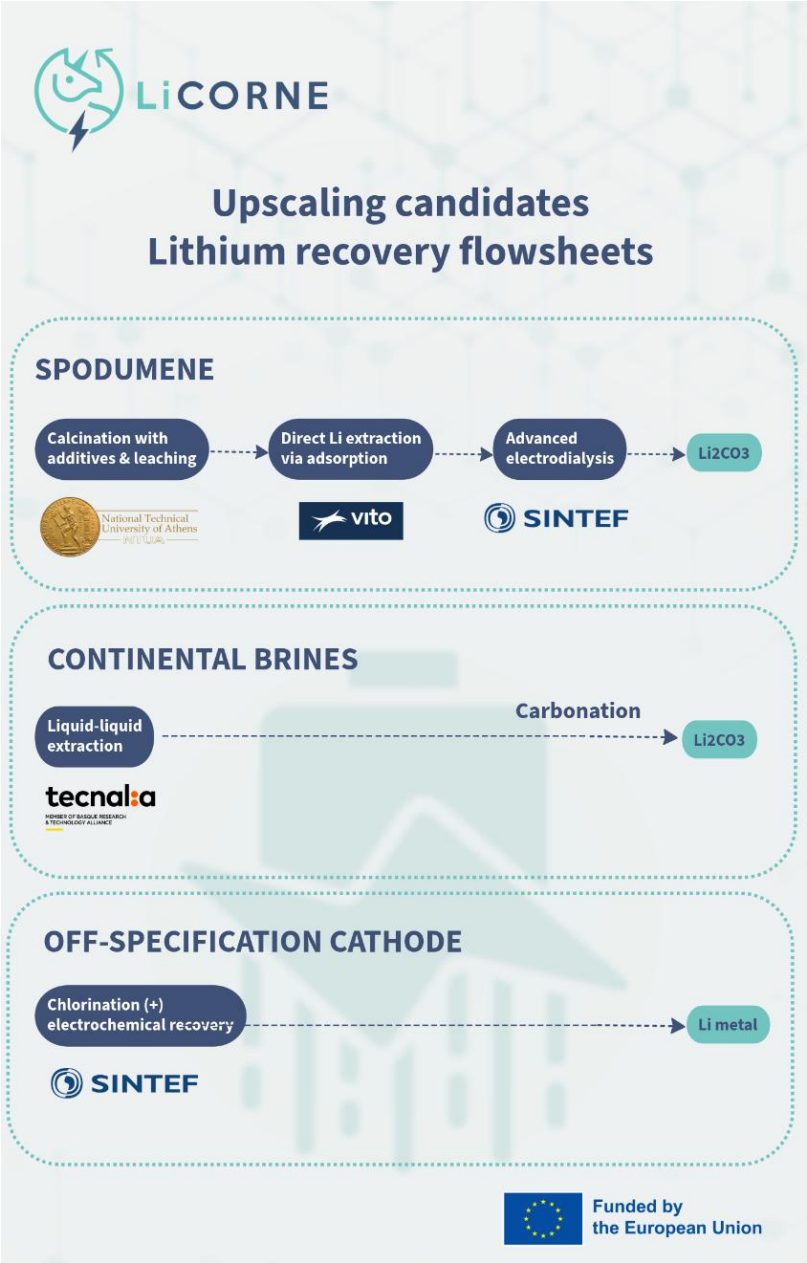

Figure 1. Visual diagram illustrating the three lithium production routes identified by the LiCORNE project for upscaling - from ores, brines and battery waste

A feasibility study was performed for the three candidate flowsheets before moving into the scale-up phase. The study confirmed their readiness for implementation in line with equipment requirements, scalability and the project's remaining budget envelope. Once the processes are validated at the higher scale in the constructed prototypes, partners will evaluate the environmental and economic performance of the flowsheets to produce more precise information for the final business analysis.

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About LiCORNE project

LiCORNE (Lithium recovery and battery-grade materials production from European resources) is a four-year Horizon Europe project launched in October 2022. With €6.77 million in funding from the European Climate, Infrastructure and Environment Executive Agency (CINEA) under Grant Agreement No. 101069644, the project aims to establish the first integrated lithium supply chain in Europe.

Coordinated by TECNALIA Research and Innovation, the project brings together 16 partners across the lithium value chain, from feedstock providers to technology developers and cathode manufacturers. LiCORNE combines expertise in materials science, engineering, and economics to support the development of a sustainable lithium supply chain in Europe.

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Consortium members

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